

## Midterm 1 Review



## Pointers



- Referencing with &
- Dereferencing with \*
- Pointer Independence
- Assigning through \*
- Pointers as Variables

## Linked List



- The node class
- Iterating through a Linked List
- Making a Linked List
- Operations (add to head, remove from head, etc)

## Stacks



- LIFO
- Top, Push, Pop
- Depth First Search
- Applications

## Queues



- FIFO
- Front, Push (enqueue), Pop (dequeue)
- Breadth First Search
- Applications

## Analysis of Algorithms



- Selection Sort
- Insertion Sort
- Fisher-Yates
- Binary Search
- Merge Sort

## Analysis of Algorithms



- Big O Simplification
- Dominance Relations

- Arithmetic Series 
$$\sum_{i=0}^n i = \frac{n(n+1)}{2}$$

- Analysis of simple functions (iterative and recursive)

## Recursion



- What is recursion?
- Basics
- Backtracking
- Minimax

## Types of Questions



- multiple choice/conceptual
- multiple choice/find the bug
- what does this code do/print?
- analysis of simple functions (as on worksheet W10)
- coding - could require the use or manipulation of:
  - linked lists
  - stacks
  - queues
  - simple recursion (no backtracking, minimax)